Apprenticeship and Industry Training

Locksmith

Apprenticeship Course Outline

5008 (2008)

Government of Alberta ■

Apprenticeship and Industry Training

ALBERTA ADVANCED EDUCATION AND TECHNOLOGY CATALOGUING IN PUBLICATION DATA

Alberta. Alberta Advanced Education and Technology. Apprenticeship and Industry Training.
Locksmith : apprenticeship course outline.

ISBN 978-0-7785-7499-6

1. Locksmithing – Study and teaching – Alberta. 2. Apprenticeship programs – Alberta.
3. Apprentices – Alberta. 4. Occupational training – Alberta. I. Title.

HD4885.C2.L63 A333 2008 373.27

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Locksmith
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Course Outline

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Apprenticeship

Apprenticeship is post-secondary education with a difference. Apprenticeship begins with finding an employer. Employers hire apprentices, pay their wages and provide on-the-job training and work experience. Approximately 80 per cent of an apprentice's time is spent on the job under the supervision of a certified journeyperson or qualified tradesperson. The other 20 per cent involves technical training provided at, or through, a post-secondary institution – usually a college or technical institute.

To become certified journeypersons, apprentices must learn theory and skills, and they must pass examinations. Requirements for certification—including the content and delivery of technical training—are developed and updated by the Alberta Apprenticeship and Industry Training Board on the recommendation of Locksmith Provincial Apprenticeship Committee.

The graduate of the Locksmith apprenticeship program is a certified journeyperson who will be able to:

- apply the principles of Locksmithing
- handle orders of locks, safes and allied equipment
- operate and service the tools and machinery as used in the Locksmith trade
- perform the installation of locks and allied equipment
- identify the operation of locks and safes
- identify and apply the principles of locking devices
- identify and apply the principles of safes and allied equipment
- identify municipal, provincial and federal statutes
- apply in depth knowledge of codes and specifications
- apply knowledge of master keying
- identify and apply life safety codes and regulations
- relate to other trades working in the same environment
- perform assigned tasks in accordance with quality and production standards required by industry

Apprenticeship and Industry Training System

Industry-Driven

Alberta's apprenticeship and industry training system is an industry-driven system that ensures a highly skilled, internationally competitive workforce in more than 50 designated trades and occupations. This workforce supports the economic progress of Alberta and its competitive role in the global market. Industry (employers and employees) establishes training and certification standards and provides direction to the system through an industry committee network and the Alberta Apprenticeship and Industry Training Board. The Alberta government provides the legislative framework and administrative support for the apprenticeship and industry training system.

Alberta Apprenticeship and Industry Training Board

The Alberta Apprenticeship and Industry Training Board provides a leadership role in developing Alberta's highly skilled and trained workforce. The board's primary responsibility is to establish the standards and requirements for training and certification in programs under the Apprenticeship and Industry Training Act. The board also provides advice to the Minister of Advanced Education and Technology on the needs of Alberta's labour market for skilled and trained workers, and the designation of trades and occupations.

The thirteen-member board consists of a chair, eight members representing trades and four members representing other industries. There are equal numbers of employer and employee representatives.

Industry Committee Network

Alberta's apprenticeship and industry training system relies on a network of industry committees, including local and provincial apprenticeship committees in the designated trades, and occupational committees in the designated occupations. The network also includes other committees such as provisional committees that are established before the designation of a new trade or occupation comes into effect. All trade committees are composed of equal numbers of employer and employee representatives. The industry committee network is the foundation of Alberta's apprenticeship and industry training system.

Local Apprenticeship Committees (LAC)

Wherever there is activity in a trade, the board can set up a local apprenticeship committee. The board appoints equal numbers of employee and employer representatives for terms of up to three years. The committee appoints a member as presiding officer. Local apprenticeship committees:

- monitor apprenticeship programs and the progress of apprentices in their trade, at the local level
- make recommendations to their trade's provincial apprenticeship committee (PAC) about apprenticeship and certification in their trade
- promote apprenticeship programs and training and the pursuit of careers in their trade
- make recommendations to the board about the appointment of members to their trade's PAC
- help settle certain kinds of disagreements between apprentices and their employers
- carry out functions assigned by their trade's PAC or the board

Provincial Apprenticeship Committees (PAC)

The board establishes a provincial apprenticeship committee for each trade. It appoints an equal number of employer and employee representatives, and, on the Pac's recommendation, a presiding officer - each for a maximum of two terms of up to three years. Most PACs have nine members but can have as many as twenty-one. Provincial apprenticeship committees:

- Make recommendations to the board about:
    - standards and requirements for training and certification in their trade
    - courses and examinations in their trade
    - apprenticeship and certification
    - designation of trades and occupations
    - regulations and orders under the Apprenticeship and Industry Training Act
- monitor the activities of local apprenticeship committees in their trade
- determine whether training of various kinds is equivalent to training provided in an apprenticeship program in their trade
- promote apprenticeship programs and training and the pursuit of careers in their trade
- consult with other committees under the Apprenticeship and Industry Training Act about apprenticeship programs, training and certification and facilitate cooperation between different trades and occupations
- consult with organizations, associations and people who have an interest in their trade and with employers and employees in their trade
- may participate in resolving certain disagreements between employers and employees
- carry out functions assigned by the board

Locksmith PAC Members at the Time of Publication

Mr. P. Meagher	Edmonton	Presiding Officer
Mr. G. Nielson	Edmonton	Employer
Mr. D. Roome	Hinton	Employer
Mr. E. Hare	Peace River	Employer
Mr. D. Brodie	Calgary	Employee
Mr. K. Krienke	Calgary	Employee
Mr. J. Cox	Edmonton	Employee
Mr. R. Penner	Edmonton	Employee

Alberta Government

Alberta Advanced Education and Technology works with industry, employer and employee organizations and technical training providers to:

- facilitate industry's development and maintenance of training and certification standards
- provide registration and counselling services to apprentices and employers
- coordinate technical training in collaboration with training providers
- certify apprentices and others who meet industry standards

Technical Institutes and Colleges

The technical institutes and colleges are key participants in Alberta's apprenticeship and industry training system. They work with the board, industry committees and Alberta Advanced Education and Technology to enhance access and responsiveness to industry needs through the delivery of the technical training component of apprenticeship programs. They develop lesson plans from the course outlines established by industry and provide technical training to apprentices.

Apprenticeship Safety

Safe working procedures and conditions, incident/injury prevention, and the preservation of health are of primary importance in apprenticeship programs in Alberta. These responsibilities are shared and require the joint efforts of government, employers, employees, apprentices and the public. Therefore, it is imperative that all parties are aware of circumstances that may lead to injury or harm.

Safe learning experiences and healthy environments can be created by controlling the variables and behaviours that may contribute to or cause an incident or injury. By practicing a safe and healthy attitude, everyone can enjoy the benefit of an incident and injury free environment.

Alberta Apprenticeship and Industry Training Board Safety Policy

The Alberta Apprenticeship and Industry Training Board fully supports safe learning and working environments and encourages the teaching of proper safety procedures both within trade specific training and in the workplace.

Trade specific safety training is an integral component of technical training, while ongoing or general non-trade specific safety training remains the responsibility of the employer and the employee as required under workplace health and safety legislation.

Workplace Responsibilities

The employer is responsible for:

- training employees and apprentices in the safe use and operation of equipment
- providing and maintaining safety equipment, protective devices and clothing
- enforcing safe working procedures
- providing safeguards for machinery, equipment and tools
- observing all accident prevention regulations

The employee and apprentice are responsible for:

- working in accordance with the safety regulations pertaining to the job environment
- working in such a way as not to endanger themselves, fellow employees or apprentices

Workplace Health and Safety

A tradesperson is often exposed to more hazards than any other person in the work force and therefore should be familiar with and apply the Occupational Health and Safety Act, Regulations and Code when dealing with personal safety and the special safety rules that apply to all daily tasks.

Workplace Health and Safety (Alberta Employment, Immigration and Industry) conducts periodic inspections of workplaces to ensure that safety regulations for industry are being observed.

Additional information is available at www.worksafely.org

Technical Training

Apprenticeship technical training is delivered by the technical institutes and many colleges in the public post-secondary system throughout Alberta. The colleges and institutes are committed to delivering the technical training component of Alberta apprenticeship programs in a safe, efficient and effective manner. All training providers place great emphasis on safe technical practices that complement safe workplace practices and help to develop a skilled, safe workforce.

The following institutions deliver Locksmith apprenticeship technical training:

Red Deer College (Sherwood Park)

Procedures for Recommending Revisions to the Course Outline

Advanced Education and Technology has prepared this course outline in partnership with the Locksmith Provincial Apprenticeship Committee.

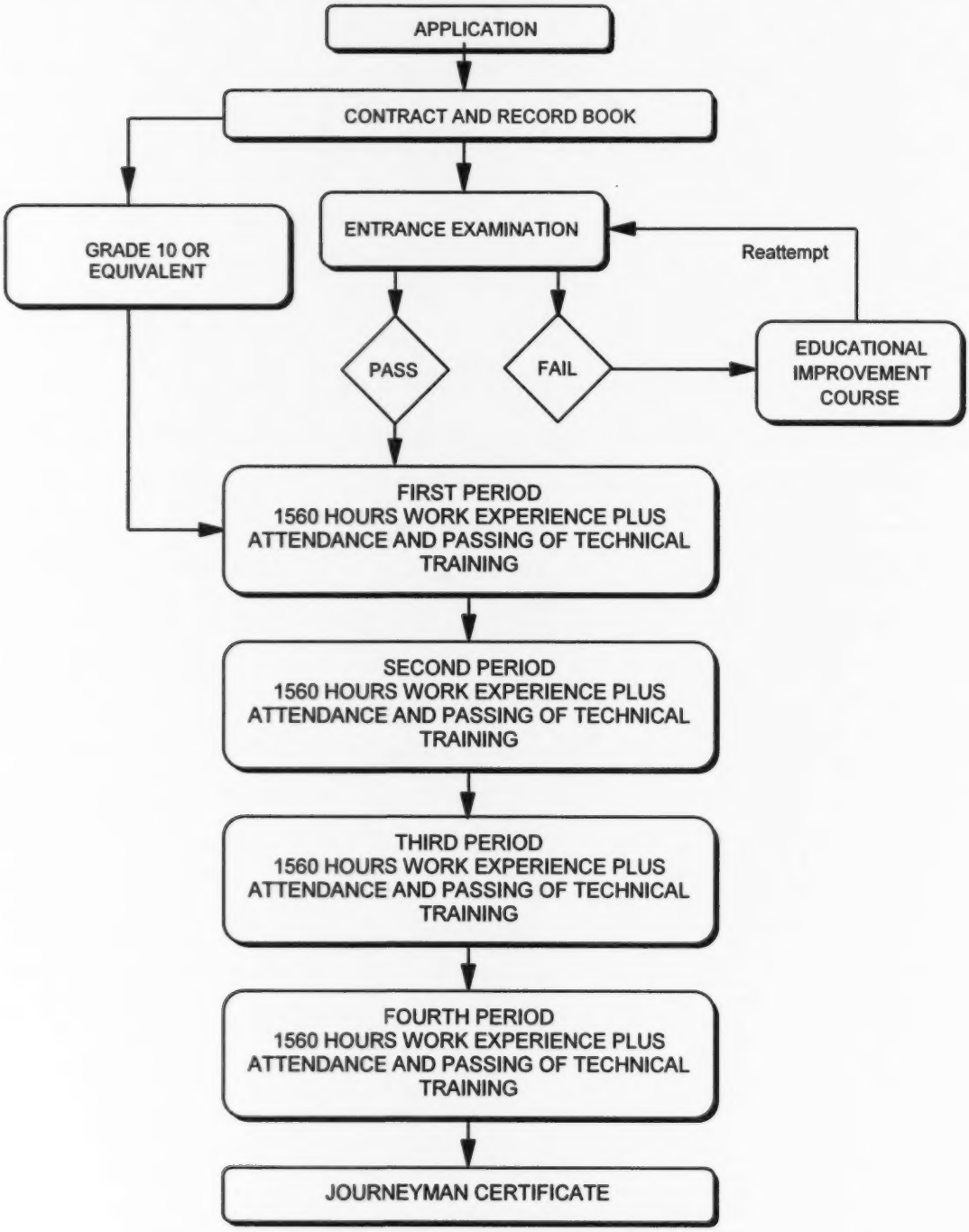
This course outline was approved on February 1, 2008 by the Alberta Apprenticeship and Industry Training Board on a recommendation from the Provincial Apprenticeship Committee. The valuable input provided by representatives of industry and the institutions that provide the technical training is acknowledged.

Any concerned individual or group in the province of Alberta may make recommendations for change by writing to:

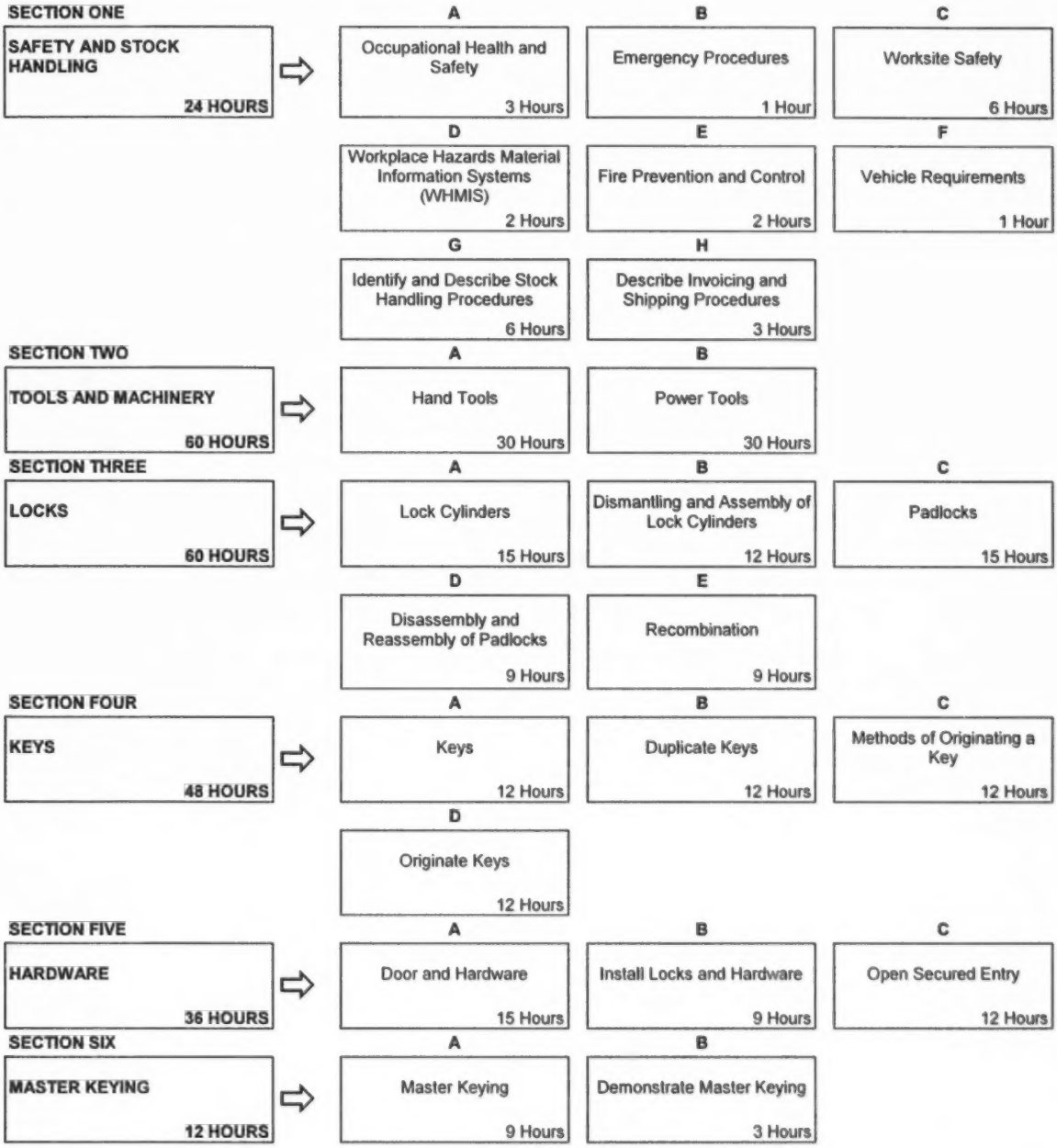
Locksmith Provincial Apprenticeship Committee
c/o Industry Programs and Standards
Apprenticeship and Industry Training
Advanced Education and Technology
10th floor, Commerce Place
10155 102 Street NW
Edmonton AB T5J 4L5

It is requested that recommendations for change refer to specific areas and state references used. Recommendations for change will be placed on the agenda for regular meetings of the Locksmith Provincial Apprenticeship Committee.

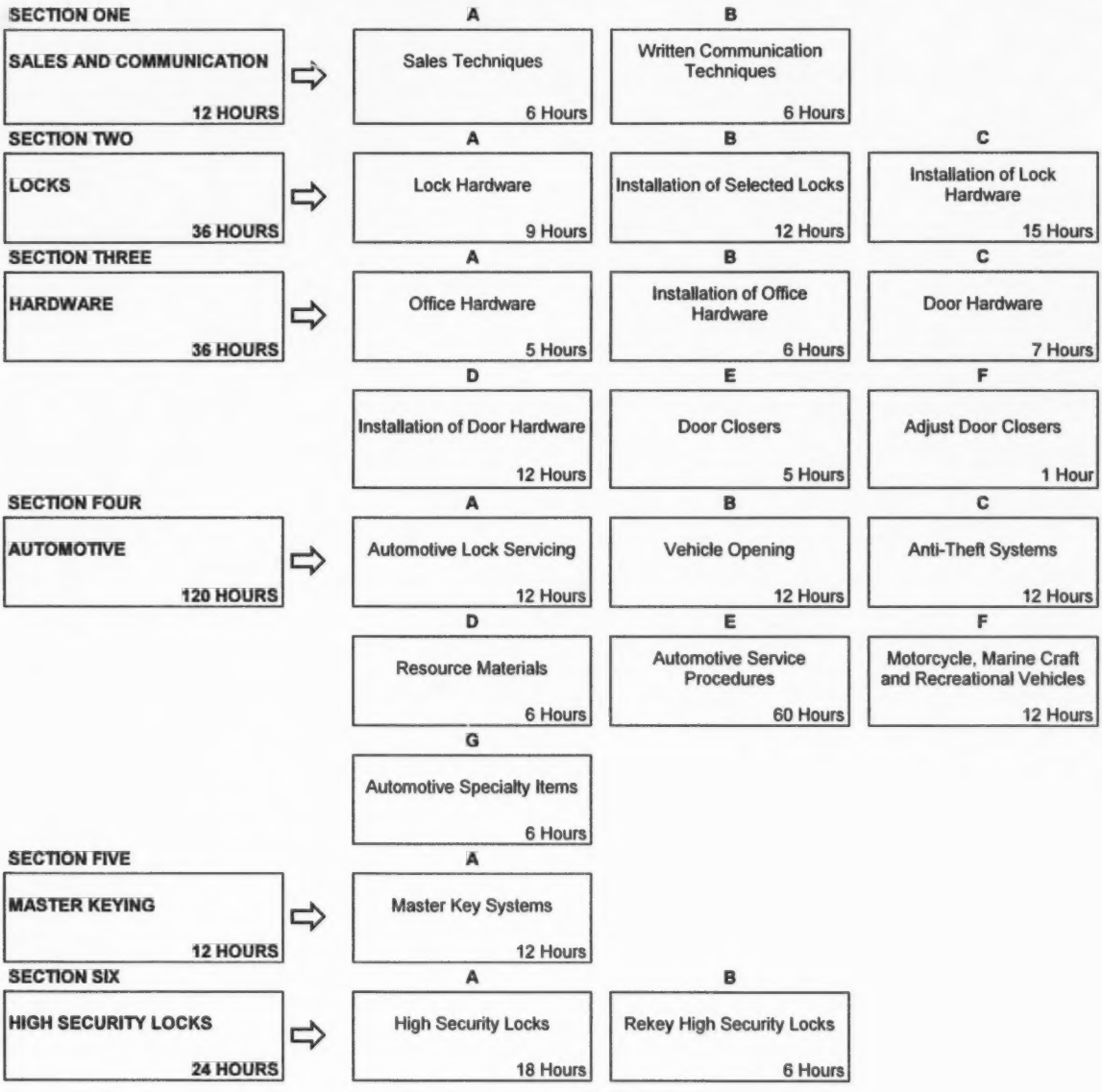
Apprenticeship Route toward Certification


APPLICATION
CONTRACT AND RECORD BOOK
GRADE 10 OR EQUIVALENT
ENTRANCE EXAMINATION
Reattempt
PASS
FAIL
EDUCATIONAL IMPROVEMENT COURSE
FIRST PERIOD
1560 HOURS WORK EXPERIENCE PLUS ATTENDANCE AND PASSING OF TECHNICAL TRAINING
SECOND PERIOD
1560 HOURS WORK EXPERIENCE PLUS ATTENDANCE AND PASSING OF TECHNICAL TRAINING
THIRD PERIOD
1560 HOURS WORK EXPERIENCE PLUS ATTENDANCE AND PASSING OF TECHNICAL TRAINING
FOURTH PERIOD
1560 HOURS WORK EXPERIENCE PLUS ATTENDANCE AND PASSING OF TECHNICAL TRAINING
JOURNEYMAN CERTIFICATE

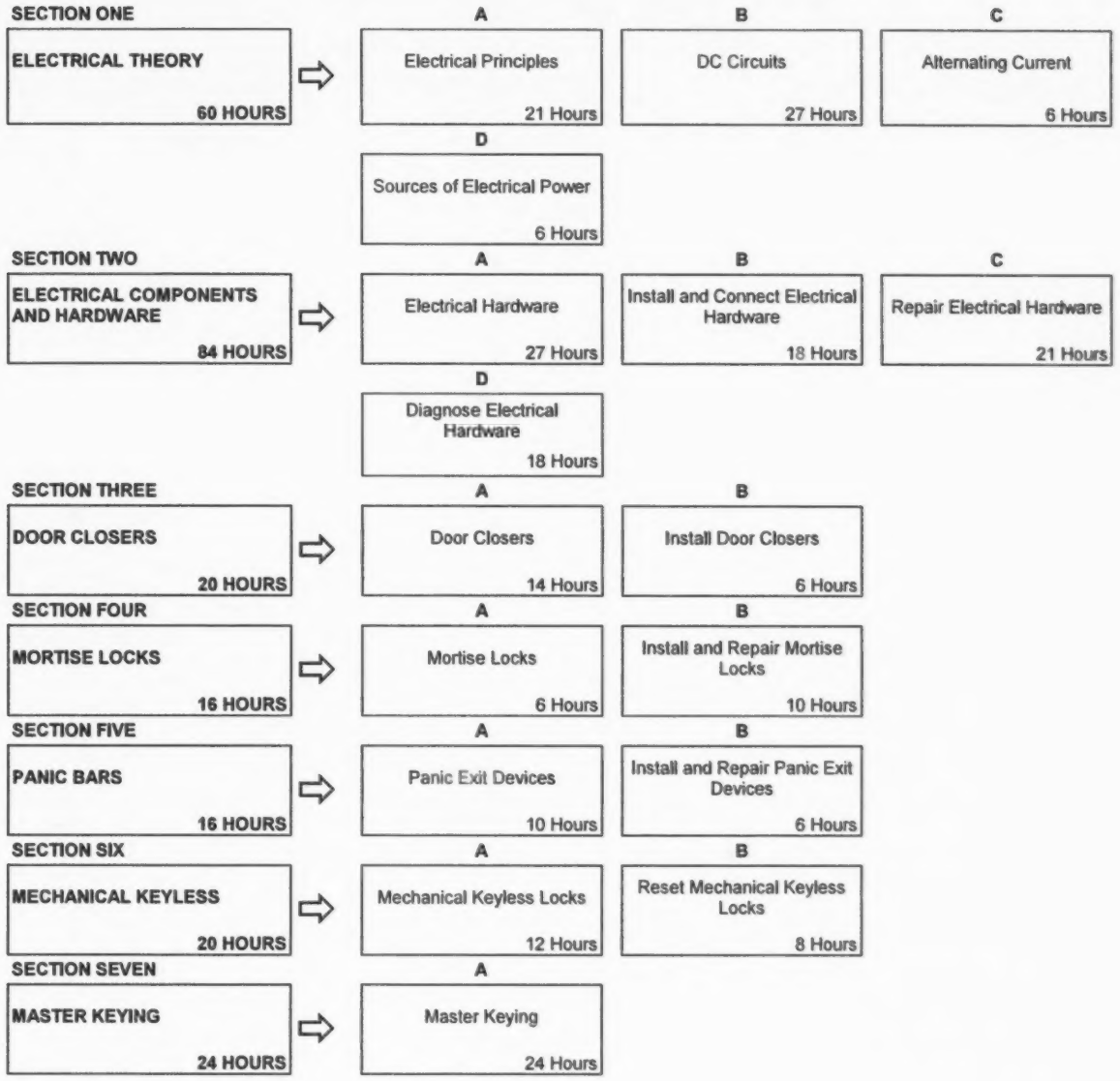
Locksmith Training Profile
FIRST PERIOD
(8 Weeks 30 Hours per Week – Total of 240 Hours)



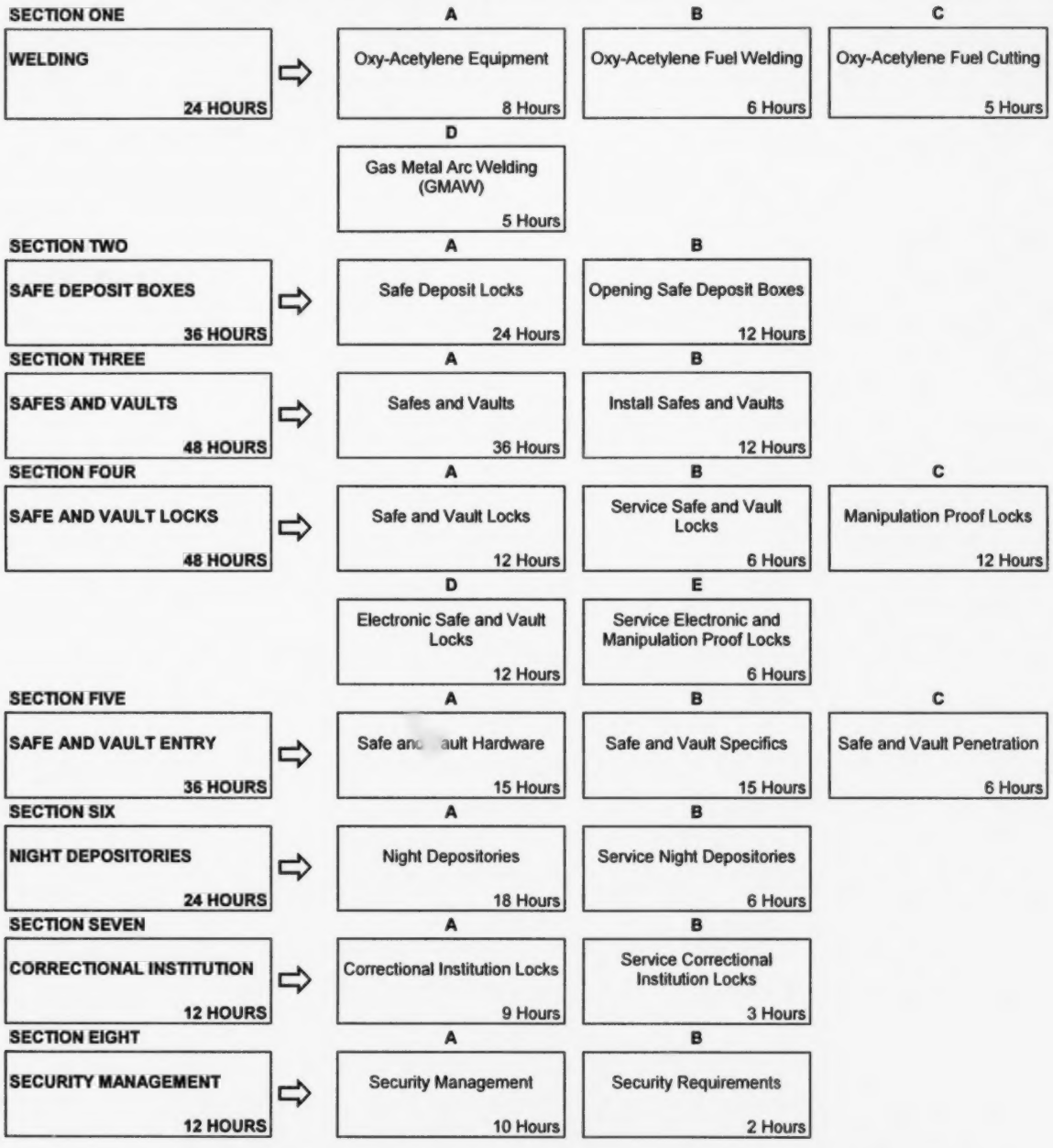
SECOND PERIOD
(8 Weeks 30 Hours per Week – Total of 240 Hours)



THIRD PERIOD
(8 Weeks 30 Hours per Week – Total of 240 Hours)



FOURTH PERIOD
(8 Weeks 30 Hours per Week – Total of 240 Hours)



NOTE: The hours stated are for guidance and should be adhered to as closely as possible. However, adjustments must be made for rate of apprentice learning, statutory holidays, registration and examinations for the training establishment and Apprenticeship and Industry Training.

FIRST PERIOD TECHNICAL TRAINING
LOCKSMITH TRADE
COURSE OUTLINE

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

SECTION ONE:.....SAFETY AND STOCK HANDLING ..... 24 HOURS

A. Occupational Health And Safety .....3 Hours

Outcome: ***Identify trade related occupational health and safety procedures and regulations.***

1. Describe the Occupational Health and Safety Act (OH&SA).
2. Describe the OH&SA regulations most pertinent to the Locksmith Industry.

B. Emergency Procedures .....1 Hour

Outcome: ***Describe emergency procedures and first aid certification.***

1. Describe procedures for obtaining emergency assistance and first aid training.

C. Worksite Safety.....6 Hours

Outcome: ***Identify potential safety hazards.***

1. Describe hazards caused by poor air quality.
2. Describe noise hazards.
3. Describe shop hazards.
4. Describe jobsite hazards.
5. Describe some general purpose rules for working safely.

D. Workplace Hazardous Material Information Systems (WHMIS).....2 Hours

Outcome: ***Identify and describe Workplace Hazardous Material Information Systems (WHMIS).***

1. Identify and describe Workplace Hazardous Material Information Systems (WHMIS).
2. Describe the elements of WHMIS.

E. Fire Prevention and Control .....2 Hours

Outcome: ***Identify types of fire and control.***

1. Describe the nature of fire and fire hazards, prevention and control strategies.
2. Describe the selection and use of fire extinguishers.

F. Vehicle Requirements .....1 Hour

Outcome: ***Identify and inspect the requirements of a commercial vehicle.***

1. Identify and describe costs and conditions for safe commercial vehicle operation.
2. Perform commercial vehicle inspection.

G. Stock Handling Procedures ..... 6 Hours

Outcome: ***Describe purchasing, receiving and warehousing procedures.***

1. Describe purchasing and receiving procedures.
2. Describe warehouse set-up for Locksmiths.
3. Describe set-up and stocking procedures for Locksmiths' vans.

H. Invoicing and Shipping Procedures ..... 3 Hours

Outcome: ***Describe invoicing and shipping procedures.***

1. Describe the writing of invoices.
2. Describe packaging and shipping methods.

SECTION TWO: ..... TOOLS AND MACHINERY ..... 60 HOURS

A. Hand Tools ..... 30 Hours

Outcome: ***Identify and describe hand tools and their proper uses.***

1. Identify and describe basic hand tools:
   a) hammers and prying tools
   b) screwdrivers
   c) wrenches, socket wrenches and pliers
   d) vices and clamps
2. Describe the use of measuring and layout tools:
   a) rulers, tapes, squares and levels
   b) precision measuring tools
3. Demonstrate the use of measuring and layout tools (Lab):
   a) practice measuring with micrometers
   b) practice measuring with vernier calipers
   c) practice measuring with dial calipers
   d) practice using layout tools
4. Describe edge cutting hand tools and their safe use:
   a) chisels and punches
   b) types of files
   c) taps and dies
   d) hack saws
5. Demonstrate the use of edge cutting tools:
   a) practice using wood chisels
   b) practice using metal cutting tools
6. Fabricate an adjustable plug holder.
7. Identify and describe specialty locksmith tools:
   a) lock tools, picks and pick guns
   b) lock servicing tools
   c) auto opening and auto lock servicing tools

8. Fabricate types of springs (Lab):
   a) wire torsion spring
   b) conical wire compression spring
   c) ends for a wire extension spring

B. Power Tools ..... 30 Hours

Outcome: ***Identify and describe the safe operation of portable power tools.***

1. Identify power drills:
   a) describe safe use of power drills
   b) describe electric hand drills
   c) describe drill presses
   d) describe drill bits
2. Demonstrate the safe operation of power drills:
   a) demonstrate the safe and correct use of hand electric drills
3. Describe grinders:
   a) bench grinders
   b) angle grinders
   c) die grinders
4. Demonstrate the safe operation of bench and die grinders and buffers:
   a) demonstrate the ability to sharpen by grinding a wood chisel and drill bit accurately and safely
   b) demonstrate the ability to control and use a die grinder
5. Identify and describe jig saws:
   a) describe safe use of jig saws
   b) describe jig saws
6. Demonstrate the safe operation of jig saws.
7. Identify and describe routers:
   a) describe types of routers
   b) describe the fabrication and use of a router template
8. Identify and describe key cutting machines:
   a) paracentric and flat key duplicating machines
   b) code cutting key machines
   c) specialty key machines and key machine accessories
9. Demonstrate the safe operation of key machines:
   a) safely use, service and adjust cutter type keys
   b) safely use, service and adjust punch type key machines

SECTION THREE: ..... LOCKS ..... 60 HOURS

A. Lock Cylinders ..... 15 Hours

Outcome: ***Identify and describe lock cylinders and lock assemblies.***

1. Identify various key lock mechanisms.
2. Describe the function and application for each type of key lock mechanism.
3. Identify types of lock cylinders.
4. Describe the function and application for each type of lock cylinder.
5. Describe the disassembly instructions for pin tumbler cylinders.

B. Dismantling and Assembly of Lock Cylinders ..... 12 Hours

Outcome: ***Demonstrate dismantling and assembly of lock cylinders (Lab).***

1. Disassemble and assemble a warded lock.
2. Disassemble and assemble a lever lock.
3. Disassemble and assemble various wafer tumbler locks.
4. Disassemble and assemble various pin tumbler cylinders.
5. Disassemble and assemble various special purpose cylinders.

C. Padlocks ..... 15 Hours

Outcome: ***Identify and describe padlocks.***

1. Identify types of padlocks.
2. Identify types of hasps.
3. Describe padlock locking functions.
4. Describe the disassembly and assembly of padlocks.
5. Identify and describe padlock security classifications.

D. Disassembly and Assembly of Padlocks ..... 9 Hours

Outcome: ***Demonstrate disassembly and assembly of padlocks (Lab).***

1. Disassemble and assemble a Schlage 45-101 padlock.
2. Disassemble and assemble an Almont rekeyable padlock.
3. Disassemble and assemble a Master rekeyable laminated padlock.
4. Disassemble and assemble an American steel or brass padlock.
5. Assemble a sub-assembled extruded brass padlock.

E. Recombination ..... 9 Hours

Outcome: ***Identify and describe recombination of lock mechanisms.***

1. Identify and describe recombination of pin tumbler cylinders.
2. Identify and describe recombination of wafer locks.
3. Identify and describe recombination of tubular locks.
4. Identify and describe recombination of lever locks.

SECTION FOUR: ..... KEYS ..... 48 HOURS

A. Keys ..... 12 Hours

Outcome: ***Identify and describe keys.***

1. Describe the operation and function of keys.
2. Identify keys.
3. Describe cut keys.
4. Describe duplication and verification of keys.

B. Duplicate Keys ..... 12 Hours

Outcome: ***Demonstrate the ability to duplicate keys (Lab).***

1. Demonstrate the ability to measure keys.
2. Demonstrate the ability to duplicate keys using key machines.
3. Demonstrate the ability to duplicate keys using hand tools.
4. Demonstrate the ability to duplicate broken keys.

C. Methods of Originating a Key ..... 12 Hours

Outcome: ***Identify and describe methods of originating a key.***

1. Identify and describe origination of a first key by code.
2. Identify and describe origination of a first key by disassembly.
3. Identify and describe origination of a first key by impressioning.
4. Identify and describe origination of a first key by pick and read.
5. Identify and describe origination of a first key by sighting.
6. Identify and describe origination of a first key using decoding picks.

D. Originate Keys ..... 12 Hours

Outcome: ***Demonstrate the ability to originate keys to locks (Lab).***

1. Originate key by code.
2. Originate key by disassembly.
3. Originate key by impressioning.
4. Originate key by picking and reading.
5. Originate key by sighting.

SECTION FIVE: ..... HARDWARE ..... 36 HOURS

A. Door and Hardware ..... 15 Hours

Outcome: ***Identify and describe door and lock hardware.***

1. Identify lock hardware and manufacturers.
2. Identify and describe the use of published resource material.
3. Identify and describe functions, ratings and door handings pertaining to lock hardware.
4. Identify and describe doors and door hardware.

B. Install Locks and Hardware ..... 9 Hours

Outcome: ***Install basic locks and hardware as per specifications (Lab).***

1. Demonstrate the ability to install door locks.
2. Demonstrate the ability to install cabinet locks.
3. Remove, refurbish and re-install lock hardware:
   a) demonstrate the ability to remove and re-install lock hardware of residential or light commercial duty to service lock cylinder
   b) demonstrate the ability to remove and re-install lock hardware for residential or light commercial duty to repair hardware malfunction
   c) demonstrate the ability to refurbish lock hardware

C. Open Secured Entry ..... 12 Hours

Outcome: ***Identify and describe how to open secured entry.***

1. Identify proper authorization procedures.
2. Describe various methods to gain entry of locked doors.
3. Describe various methods to gain entry of malfunctioning locks.

SECTION SIX: ..... MASTER KEYING ..... 12 HOURS

A. Master Keying ..... 9 Hours

Outcome: ***Identify and describe the basics of master keying.***

1. Describe the principles and terminology of master keying.
2. Describe maintaining security.
3. Identify and describe pinning of cylinders to a master key.

B. Demonstrate Master Keying ..... 3 Hours

Outcome: ***Demonstrate the skill to recombinate and master key lock mechanisms.***

1. Demonstrate the ability to recombinate and master key lock mechanisms (Lab).
2. Demonstrate the ability to recombinate and master key pin tumbler cylinders.
3. Demonstrate the ability to recombinate wafer tumbler locks.
4. Demonstrate the ability to recombinate tubular locks.
5. Demonstrate the ability to recombinate lever locks.

SECOND PERIOD TECHNICAL TRAINING
LOCKSMITH TRADE
COURSE OUTLINE

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

SECTION ONE:.....SALES AND COMMUNICATION..... 12 HOURS

A. Sales Techniques ..... 6 Hours

Outcome: ***Identify and describe sales techniques.***

1. Identify and describe personal characteristics for successful selling.
2. Identify and describe the knowledge base required to be an effective salesperson.
3. Identify and describe selling techniques.

B. Written Communication Techniques ..... 6 Hours

Outcome: ***Identify and describe written communication techniques.***

1. Describe organization and execution of written communications.

SECTION TWO:..... LOCKS ..... 36 HOURS

A. Lock Hardware ..... 9 Hours

Outcome: ***Identify and describe commercial lock hardware.***

1. Identify and describe lock types, functions and manufacturers.
2. Identify and describe lock specifications.
3. Identify and describe special requirements for doors, frames and lock hardware.

B. Installation of Selected Locks ..... 12 Hours

Outcome: ***Identify and describe installation and service of commercial lock hardware.***

1. Describe the installation and service of selected Adams Rite narrow stile locks.
2. Describe the installation steps common to all cylindrical locks.
3. Describe the servicing of Schlage D-series cylindrical commercial locks.
4. Describe the servicing of Sargent 8-line cylindrical commercial locks.
5. Describe the servicing of selected Corbin Model 76 cylindrical commercial locks.
6. Describe the servicing of the Weiser SP DLDG cylindrical lock.
7. Describe the removal, keying and reinstallation of interchangeable cores.

C. Installation of Lock Hardware ..... 15 Hours

Outcome: ***Demonstrate the ability to install and service commercial lock hardware (Lab).***

1. Demonstrate the ability to install commercial lock hardware.
2. Demonstrate the ability to service commercial lock hardware.

SECOND PERIOD

SECTION THREE: .....HARDWARE..... 36 HOURS

A. Office Hardware .....5 Hours

Outcome: Identify and describe office furniture and hardware.

1. Identify various lock hardware used in office and furniture applications.
2. Install and repair various office and furniture hardware.

B. Installation of Office Hardware.....6 Hours

Outcome: Demonstrate the ability to install and repair office furniture hardware.

1. Demonstrate the ability to service file cabinets.
2. Demonstrate the ability to service desk lock assemblies.
3. Demonstrate the ability to service mailbox locks.

C. Door Hardware .....7 Hours

Outcome: Identify and describe door hardware.

1. Identify and describe doors, door frames and door hardware.
2. Describe installation of door hardware.

D. Installation of Door Hardware .....12 Hours

Outcome: Demonstrate the ability to install and service door hardware (Lab).

1. Demonstrate the ability to install a push/pull assembly.
2. Demonstrate the ability to install blocker plates.
3. Demonstrate the ability to install and adjust pivots on aluminum glass doors.
4. Demonstrate the ability to install a reinforcement pivot.
5. Demonstrate the ability to install an exit alarm.
6. Demonstrate the ability to install a door saver.
7. Demonstrate the ability to service a fluch bolt in an aluminum glass door.

E. Door Closers .....5 Hours

Outcome: Identify and describe door closers.

1. Identify types of door closers.
2. Identify door closer arms and accessories.
3. Identify and describe the operation and adjustments of door closers.

F. Adjust Door Closers.....1 Hour

Outcome: Identify and describe the adjustment of door closers.

1. Demonstrate the ability to adjust door closers.

SECTION FOUR: ..... AUTOMOTIVE ..... 120 HOURS

Special Note: Due to the rate of change in the automotive area of Locksmithing, information in the subject should be limited to that which is relevant to vehicles produced within the past twenty years.

A. Automotive Lock Servicing ..... 12 Hours

Outcome: ***Identify and describe automotive lock servicing.***

1. Describe ethical and legal considerations.
2. Identify and describe design concepts:
   a) key/lock mechanisms used in automotive lock systems
   b) keying concepts
3. Identify and describe theft reduction design measures.
4. Identify and describe electronic anti-theft systems.
5. Identify and describe typical procedures for originating keys.
6. Identify and describe door panel servicing:
   a) tools
   b) specialty fasteners
   c) linkage rods, cables, clips
   d) automotive door design concepts
   e) removing door cylinders

B. Vehicle Opening ..... 12 Hours

Outcome: ***Describe and demonstrate vehicle opening.***

1. Describe proper procedure for obtaining authorization.
2. Identify and describe overview of car opening.
3. Identify and describe fundamentals of automotive door design:
   a) latch
   b) lock cylinder
   c) door handle
   d) interior release
   e) power door lock solenoid
   f) linkage/cables
4. Identify and describe tools used.
5. Identify and describe door-mounted inflatable restraints.
6. Use resource materials to obtain information on vehicle opening.

7. Open vehicles by the following methods:
    a) manipulate free-play pawl
    b) manipulate vertical lock rod
    c) manipulate horizontal lock rod
    d) manipulate vertical lock button from inside door
    e) use —under the window" tool
    f) use plastic strip
    g) use fondue fork
    h) manipulate vent window latch
    i) read and decode visible key

C. Anti-Theft Systems ..... 12 Hours

Outcome: ***Identify and describe anti-theft systems.***

1. Describe the overview of the system operation.
2. Identify and describe vehicle makes/models affected.
3. Identify and describe service tools and equipment.
4. Identify and describe service procedures.
5. Identify and describe resource materials available.
6. Identify and describe systems:
    a) GM specific
        i) VATS
        ii) Passlock
    b) transponders
    c) other manufacture's deterrents
7. Read value to duplicate key.
8. Use diagnostic equipment to program and/or duplicate keys.
9. Use resource material.

D. Resource Materials ..... 6 Hours

Outcome: ***Identify and describe the available resource materials available to facilitate automotive lock service procedures.***

1. Identify and describe key blank catalogues.
2. Identify and describe key blank references.
3. Identify and describe code books and databases.
4. Identify and describe car opening manuals.
5. Identify and describe automotive reference listings.
6. Identify and describe OEM and after-market lock/parts catalogues.
7. Identify and describe automotive jobber service manuals.
8. Identify and describe internet resources.

E. Automotive Service Procedures ..... 60 Hours

Outcome: ***Identify and describe the lock service procedures as they apply to vehicle makes/types.***

1. Originate keys:
   a) make key to code
   b) use progression methods
   c) impression
   d) use decoder tools
   e) exploit vehicle make/model specific traits
2. Re-key locks.
3. Remove/reinstall locks:
   a) ignition locks
   b) door locks
   c) compartment and accessory locks
4. Remove a broken key.
5. Service malfunctioning lock mechanisms:
   a) common malfunctions as they pertain to specific makes
   b) make/model specific malfunctions
6. Repair locks.
7. Disable inflatable restrain systems to facilitate service procedures.
8. Use resource material to facilitate service procedures.
9. Identify and describe vehicle makes/types:
   a) domestic makes
      i) Ford
      ii) General Motors
      iii) Chrysler
      iv) Saturn
   b) Asian imports
   c) European imports
   d) British imports
   e) Scandinavian imports
   f) transport trucks
   g) heavy equipment
10. Perform the full complement of service procedures on each of the makes/types listed above.

F. Motorcycle, Marine Craft and Recreational Vehicles ..... 12 Hours

Outcome: ***Identify and describe locks for motorcycle, marine craft and recreational vehicles.***

1. Identify and describe motorcycle lock:
   a) types
   b) applications
   c) operation
   d) key code anomalies
   e) resource material available

2. Identify and describe marine craft:
   a) lock types
   b) key codes and keying procedures
3. Identify and describe recreational vehicle:
   a) lock types

G. Automotive Specialty Items ..... 6 Hours

Outcome: ***Identify and describe automotive specialty items.***

1. Describe after-market anti-theft products:
   a) operation
   b) service procedures
2. Identify and describe specialty items:
   a) commercial trailer lick (king pin lock)
   b) locking gas cap
   c) "club"
   d) -eane"

SECTION FIVE: ..... MASTER KEYING ..... 12 HOURS

A. Master Key Systems ..... 12 Hours

Outcome: ***Identify and develop master key systems.***

1. Identify and describe master keying.
2. Identify and describe master key planning.
3. Identify and describe master key charting.
4. Describe the co-ordination of the master key process.
5. Identify and describe total progression structure.

SECTION SIX: ..... HIGH SECURITY LOCKS ..... 24 HOURS

A. High Security Locks ..... 8 Hours

Outcome: ***Identify and describe high security locks.***

1. Identify and describe the purpose and role of high security locks.
2. Identify and describe the operating principles of various high security cylinders.
3. Identify and describe the rekeying of various high security locks.
4. Identify and describe the use of high security key machines to duplicate or originate high security keys.

B. Rekey High Security Locks ..... 16 Hours

Outcome: ***Demonstrate the ability to rekey high security lock hardware.***

1. Demonstrate the ability to rekey an Abloy lock.
2. Demonstrate the ability to rekey an ASSA lock.
3. Demonstrate the ability to rekey a Dom ix lock.
4. Demonstrate the ability to rekey a Corbin Emhart lock.
5. Demonstrate the ability to rekey a Medeco lock.
6. Demonstrate the ability to rekey a Miwa lock.
7. Demonstrate the ability to rekey a Schlage Primus lock.

THIRD PERIOD TECHNICAL TRAINING
LOCKSMITH TRADE
COURSE OUTLINE

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

SECTION ONE: ELECTRICAL THEORY ..... 60 HOURS

A. Electrical Principles ..... 21 Hours

Outcome: ***Identify and describe electrical principles.***

1. Identify and describe composition of matter:
   - a) describe the composition of matter
   - b) describe the basic structure of the atom
   - c) define related terms
2. Describe voltage, current, resistance and power:
   - a) perform the prerequisite math skills
   - b) describe the nature of electric current
   - c) describe the nature of voltage
   - d) describe resistance, state and apply Ohm's law
3. Identify and describe proper selection and use of meters:
   - a) state the correct applications of the various meters
   - b) list the precautions that must be observed when using meters
   - c) interpret the readings of analog meters
   - d) interpret the readings of digital meters
   - e) recognize the correct connections for various meters
4. Demonstrate applications of Ohm's law:
   - a) demonstrate the correct use of a digital multimeter to measure amps, volts and ohms in the circuit
5. Describe the characteristics of conductors:
   - a) perform prerequisite math skills
   - b) describe factors affecting resistance
   - c) perform calculations involving resistance
   - d) describe electrical properties of materials

B. DC Circuits ..... 27 Hours

Outcome: ***Describe and apply DC circuit principles.***

1. Identify and define series resistive circuits:
   - a) define a series circuit and calculate current in a series circuit
   - b) state the formula for total resistance and calculate resistance in a series circuit
   - c) state and apply Kirchoff's voltage law and calculate voltage drops across resistors
   - d) define the terms ratio and direct proportion and perform calculations using both
   - e) state the relationship between the resistive values of components and their voltage drops and solve problems using the voltage divider rule
   - f) determine the voltage drop across a closed or open circuited component in a series circuit

2. Describe the advantages and disadvantages of gelled electrolyte batteries:
   a) state the hazards and precautions to be observed when charging batteries
   b) state the three common performance rating and their applications
   c) calculate internal resistance and voltage drops
3. Describe and define magnetism, electromagnetism and induction:
   a) describe the properties of magnetic materials
   b) define the terminology related to magnetic fields
   c) describe the properties of electromagnetic devices
   d) describe how induced voltages are generated
   e) describe the process of electromagnetic induction
4. Demonstrate series circuit applications:
   a) to connect electric locking devices is series and measure voltage and current correctly
   b) to study the relationship of current, voltage and resistance of the separate parts in a series circuit
   c) to draw a schematic circuit diagram
   d) to verify Kirchhoffs current and voltage laws
5. Identify and describe parallel resistive circuits:
   a) describe a parallel circuit
   b) calculate the total resistance of a parallel circuit using the appropriate formulas
   c) calculate the line and branch currents of a parallel circuit
   d) describe the effects of open circuits on a parallel circuit
   e) use the current divider principle to calculate branch currents
6. Demonstrate parallel circuit applications:
   a) to correctly connect two strikes and one electromagnetic lock in parallel and correctly measure the currents and voltages
7. Identify series/parallel circuits:
   a) identify resistors that are in series
   b) identify resistors that are in parallel
   c) calculate the total resistance of a series/parallel circuit
   d) apply Kirchhoff's current law
   e) apply Kirchhoff's voltage law
   f) solve problems involving series/parallel circuits
8. Parallel/Series circuit applications:
   a) to correctly connect three electric strikes/EMLs in a series/parallel circuit and correctly measure the currents and voltages
   b) to study the relationship of current, voltage and resistance in a series/parallel circuit
   c) to study the relationship between current, voltage and resistance in each separate part of a series/parallel circuit

C. Alternating Current ..... 6 Hours

Outcome: ***Describe and apply AC circuit principles.***

1. Identity and describe the fundamentals of AC:
   - a) develop a table of values
   - b) draw a graph by plotting horizontal (X) and vertical (Y) variables given in a table of values and select reasonable scales for both axes on the graph - assign an appropriate title and information
   - c) read the values on a graph - given one variable identify the other and express as coordinates
   - d) plot and read graphs using positive and negative coordinates
   - e) explain the generation of an AC sine wave value
   - f) determine the output frequency of an AC generator
   - g) calculate standard AC sine wave values
   - h) state the factors affecting impedance in an AC circuit

D. Sources of Electrical Power ..... 6 Hours

Outcome: ***Identify and describe sources of electrical power.***

1. Describe work, energy and power:
   - a) describe electrical relationships of work, energy and power
2. Describe as is cells and batteries:
   - a) define basic terminology and classification of cells
   - b) describe the construction and operation of a basic primary cell
   - c) describe the construction and operation of a lead-acid battery
   - d) describe the construction and operation of a nickel-cadmium battery

SECTION TWO: ..... ELECTRICAL COMPONENTS AND HARDWARE ..... 84 HOURS

A. Electrical Hardware ..... 27 Hours

Outcome: ***Identify and describe electrical lock hardware.***

1. Describe the history and evolution of electrical locking hardware.
2. Identify and describe electronic security timers.
3. Identify and describe electromagnetic locks.
4. Identify and describe electric strikes.
5. Identify and describe electrified locks.
6. Identify and describe electrified panic exit devices.
7. Identify and describe electronic keypads and card readers.
8. Identify and describe components of electrical installations.

B. Install and Connect Electrical Hardware ..... 18 Hours

Outcome: ***Demonstrate the ability to install electrical hardware.***

1. Demonstrate the ability to install an electric strike on a steel door frame.
2. Demonstrate the ability to install an electromagnetic lock on a steel door frame.
3. Demonstrate the ability to install a stand-alone access control system on a wood door/steel frame.

C. Repair Electrical Hardware ..... 21 Hours

Outcome: ***Diagnose and repair electrical hardware components.***

1. Diagnose and repair electrical hardware components.
2. Diagnose and repair electrical hardware systems.

D. Diagnose Electrical Hardware ..... 18 Hours

Outcome: ***Demonstrate the ability to diagnose and repair electrical hardware systems.***

1. Demonstrate the ability to diagnose and repair electrical hardware systems:
   a) demonstrate the ability to program a Von Duprin Chexit exit delay panic exit device
   b) demonstrate the ability to assemble a stand-alone access system on the bench

SECTION THREE: ..... DOOR CLOSERS ..... 20 HOURS

A. Door Closers ..... 14 Hours

Outcome: ***Identify and describe door closer installation and servicing.***

1. Overview of door closers.
2. Identify and describe specifications and applications of door closers.
3. Identify and describe installation and retrofitting of surface mounted door closers.
4. Identify and describe important principles for installation and retrofitting of floor mounted and concealed door closers.

B. Install Door Closers ..... 6 Hours

Outcome: ***Demonstrate the ability to install and retrofit door closers.***

1. Demonstrate the ability to install a TWF door closer on a wood door/metal frame assembly; standard arm configuration.
2. Demonstrate the ability to install an LCN 1073 or LCN 1463 door closer on a wood door/metal frame assembly; standard arm configuration.
3. Demonstrate the ability to install LCN 4040 door closer on a wood door/metal frame assembly; parallel arm configuration.
4. Demonstrate the ability to install an LCN 1460T (track) door on a wood door/metal frame assembly.

SECTION FOUR: ..... MORTISE LOCKS ..... 16 HOURS

A. Mortise Locks ..... 6 Hours

Outcome: Identify and describe mortise locks.

1. Identify and describe mortise lock products and applications.
2. Identify and describe working components and malfunctions of various mortise locks.
3. Identify and describe installation of mortise locks.

B. Install and Repair Mortise Locks ..... 10 Hours

Outcome: Demonstrate the ability to install and repair mortise locks.

1. Demonstrate the ability to install a mortise lock using a manufacturer's template.
2. Demonstrate the ability to install a mortise lock using a self constructed router template.
3. Demonstrate the ability to clean and service a Corbin 7495 mortise lock.
4. Demonstrate the ability to clean and service a Corbin ML2200 series mortise lock.
5. Demonstrate the ability to clean and service a Yale mortise lock.
6. Demonstrate the ability to clean and service a Schlage "L" series mortise lock.

SECTION FIVE: ..... PANIC BARS ..... 16 HOURS

A. Panic Exit Devices ..... 10 Hours

Outcome: Identify and describe panic exit devices.

1. Describe uses and types of panic hardware.
2. Identify and describe panic exit hardware manufacturers and product lines.
3. Describe the installation of panic exit devices.
4. Describe servicing of panic exit devices.

B. Install and Repair Panic Exit Devices ..... 6 Hours

Outcome: Demonstrate the ability to install and repair panic exit devices.

1. Demonstrate the ability to install a rim-mounted cross-bar panic exit device on a wood door/metal frame exit door.
2. Demonstrate the ability to install a rim-mounted vertical rod touchbar panic exit device on a wood door/metal frame exit door.
3. Demonstrate the ability to repair a Sargent 90 series rim-mounted cross-bar panic exit device.
4. Demonstrate the ability to repair a rim-mounted touchbar panic exit device.
5. Demonstrate the ability to repair and adjust a Jackson concealed vertical rod panic exit device.

SECTION SIX:..... MECHANICAL KEYLESS..... 20 HOURS

A. Mechanical Keyless Locks .....12 Hours

Outcome: ***Identify and describe mechanical keyless locks.***

1. Overview of mechanical keyless locks.
2. Identify and describe the principle and operation of various mechanical keyless locks.
3. Identify and describe resetting of mechanical keyless locks.
4. Describe the installation and servicing of Unican 1000 series mechanical keyless locks.
5. Identify and describe other Unican mechanical keyless lock models.
6. Describe the installation and servicing of the Lockey Digital Door Lock.

B. Reset Mechanical Keyless Locks .....8 Hours

Outcome: ***Demonstrate the ability to reset mechanical keyless locks.***

1. Demonstrate the ability to reset a Unican 100 lock:
   a) determine the existing combination
   b) change the combination
   c) install
2. Demonstrate the ability to reset a Lockey Digital door lock:
   a) determine the existing combination
   b) change the combination
   c) install
3. Demonstrate the ability to diagnose and repair Unican lock malfunctions.
4. Demonstrate the ability to clean and service a Lockey DDL deadlock.
5. Demonstrate the ability to open briefcase locks.

SECTION SEVEN: ..... MASTER KEYING..... 24 HOURS

A. Master Keying .....24 Hours

Outcome: ***Identify and describe master keying.***

1. Identify and describe master keying.
2. Identify and describe total position progression.
3. Identify and describe rotating constant progression
4. Identify and describe positional master keying and master keying of I/C cores.
5. Identify and describe key control and key records management methods.

FOURTH PERIOD TECHNICAL TRAINING
LOCKSMITH TRADE
COURSE OUTLINE

UPON SUCCESSFUL COMPLETION OF THIS PROGRAM THE APPRENTICE SHOULD BE ABLE TO PERFORM THE FOLLOWING OUTCOMES AND OBJECTIVES.

SECTION ONE:.....WELDING ..... 24 HOURS

A. Oxy-Acetylene Equipment .....8 Hours

Outcome: ***Identify and describe oxy-acetylene equipment.***

1. Describe oxyacetylene equipment and gases:
   - a) welding and cutting gases
   - b) oxy-acetylene cylinders
   - c) filler rods and fluxes
   - d) oxy-acetylene torch equipment
   - e) hazards associated with the oxy-acetylene welding process and the precautions needed to ensure the safety of the welder and others
2. Describe welding setup and flame adjustment:
   - a) proper setup of oxy-acetylene equipment
   - b) safe handing of oxy-acetylene torches
3. Demonstrate setting up and shutting down procedures:
   - a) identify, demonstrate the proper set up, leak checking, lighting (igniting) and shutdown procedures for an oxy-acetylene outfit
   - b) ignite the torch using the recommended procedure and demonstrate the different flame types

B. Oxy-Acetylene Fuel Welding .....6 Hours

Outcome: ***Apply the different processes for oxy-acetylene fuel welding.***

1. Describe braze welding and low temperature brazing (silver soldering):
   - a) describe the braze welding process
   - b) identify the types of material that can be braze welded
   - c) describe the edge and surface preparation for satisfactory results
   - d) identify braze welding advantage and disadvantages
   - e) describe low temperature brazing (silver soldering)
2. Describe fusion weld, braze weld, silver braze (solder) and plug drilled holes:
   - a) perform a fusion vertical lap weld using RG45 (metal stell) filler rod
   - b) perform a vertical lap braze weld as per recommended procedures
   - c) demonstrate the ability to cap hole and plug hole in safe deposit doors using bronze filler rod
   - d) demonstrate the ability to silver braze (solder) two shafts together

C. Oxy-Acetylene Fuel Cutting ..... 5 Hours

Outcome; Describe and demonstrate oxy-acetylene fuel cutting.

1. Describe the oxygen fuel gas cutting process:
   a) cutting process
   b) equipment
   c) gases
2. Cut using oxy-acetylene cutting equipment:
   a) demonstrate straight line, shape and bevel free hand cuts
   b) demonstrate piercing holes and slots

D. Gas Metal Arc Welding (GMAW) ..... 5 Hours

Outcome: Describe and demonstrate GMAW welding.

1. Assemble and operate GMAW welding.
2. Produce industry acceptable welds.
3. Recognize and identify weld faults.

SECTION TWO: ..... SAFE DEPOSIT BOXES ..... 36 HOURS

A. Safe Deposit Locks ..... 24 Hours

Outcome: Identify and describe safe deposit boxes.

1. Identify and describe the scope of safe deposit work.
2. Identify and describe safe deposit box locks and keys.
3. Identify and describe safe deposit box types and manufacturers.
4. Identify and describe opening and repair methods for safe deposit boxes.

B. Opening Safe Deposit Boxes ..... 12 Hours

Outcome: Demonstrate opening and servicing of safe deposit boxes.

1. Demonstrate the ability to make a drilling template for safe deposit boxes.
2. Demonstrate the ability to open a safe deposit box by drilling and picking.
3. Demonstrate the ability to open a safe deposit box by drilling the lock mounting screws.
4. Demonstrate the ability to repair a pick hole in a safe deposit box.
5. Demonstrate the ability to repair mounting screw holes in a safe deposit box.
6. Demonstrate the ability to originate a preparatory key for a single-nose safe deposit lock.
7. Demonstrate the ability to originate a renter's key for a single-nose safe deposit lock.

SECTION THREE: ..... SAFES AND VAULTS ..... 48 HOURS

A. Safes and Vaults ..... 36 Hours

Outcome: Identify and describe safes and vaults.

1. Describe the design improvements of safes and vaults over the last 300 years.
2. Identify and describe unique features and construction for various types of safes and vaults.

3. Identify and describe various ratings, labels and classification of safes and vaults.
4. Identify potential hazards that could be present within safes and vaults.
5. Identify and describe the moving of safes vaults, doors and frames.

B. Install Safes and Vaults ..... 12 Hours

Outcome: ***Demonstrate the ability to install service and repair safe and vault assemblies.***

1. Demonstrate the ability to move safes, vault doors and frames.
2. Demonstrate the ability to service and repair handles, bolt works and relocking devices on safes and vaults.
3. Demonstrate the ability to service and repair hinges on safes and vaults.
4. Demonstrate the ability to service and repair emergency release mechanisms on safes and vaults.
5. Demonstrate the ability to service and repair vault ventilation equipment.
6. Demonstrate the ability to install vault door and frame assemblies.

SECTION FOUR: ..... SAFE AND VAULT LOCKS ..... 48 HOURS

A. Safe and Vault Locks ..... 12 Hours

Outcome: ***Identify and describe types of locks for safes and vaults.***

1. Review of second period key locks.
2. Identify and describe safe and vault locks.
3. Describe combination changing procedures for various types of safe and vault locks.
4. Identify and describe diagnosis and solving of typical combination lock service problems.
5. Identify and describe time locks and time delay locks.

B. Service Safe and Vault Locks ..... 6 Hours

Outcome: ***Demonstrate the ability to repair and service safe and vault locks.***

1. Demonstrate the ability to disassemble service, reassemble and change the combination on a LaGard 2200 series Key-op lock.
2. Demonstrate the ability to disassemble service, repair and reassemble various safe and vault combination locks.
3. Demonstrate the ability to change combinations on various safe and vault locks.
4. Demonstrate the ability to problem solve and open combination locks.
5. Demonstrate the ability to service and repair time locks.

C. Manipulation Proof Locks ..... 12 Hours

Outcome: ***Identify and describe types of manipulation proof locks.***

1. Identify and describe principles of operation of manipulation proof locks.
2. Identify and describe service operations on various manipulation proof locks.

D. Electronic Safe and Vault Locks ..... 12 Hours

Outcome: ***Identify and describe electronic safe and vault locks.***

1. Identify and describe electronic safe locks.

E. Service Electronic and Manipulation Proof Locks ..... 6 Hours

Outcome: ***Demonstrate the ability to repair and service electronic and manipulation proof locks.***

1. Demonstrate the ability to disassemble service and reassemble manipulation proof locks.
2. Demonstrate the ability to problem-solve and open manipulation proof locks.
3. Demonstrate the ability to install electronic safe locks.

SECTION FIVE: ..... SAFE AND VAULT ENTRY ..... 36 HOURS

A. Safe and Vault Hardware ..... 15 Hours

Outcome: ***Identify and describe safe and vault handles, boltworks, relocks and hinges.***

1. Identify and describe handle and bolt work assemblies.
2. Identify and describe re-locking devices.
3. Identify and describe hinge assemblies.
4. Identify and describe pressure bars and lug doors.
5. Identify and describe safe and vault penetration tools and techniques.

B. Safe and Vault Specifics ..... 15 Hours

Outcome: ***Identify and describe vault specifics.***

1. Identify and describe alarm systems within vaults and safes.
2. Identify and describe vault penetration methods.
3. Identify and describe types of vault ventilation equipment.
4. Identify and describe vault door and frame installations.
5. Identify and describe vault door accessories and in-vault equipment.

C. Safe and Vault Penetration ..... 6 Hours

Outcome: ***Demonstrate safe and vault penetration methods.***

1. Determine and detail various entry methods for safes and vaults.
2. Determine and detail various methods for neutralizing re-locking devices.
3. Demonstrate the ability to penetrate barrier material is a safe or vault.

SECTION SIX: ..... NIGHT DEPOSITORIES ..... 24 HOURS

A. Night Depositories ..... 18 Hours

Outcome: ***Identify and describe night depositories.***

1. Identify and describe bank procedures and general rules and liabilities related to night depositories.
2. Identify and describe the general operating principle of night depositories.

3. Identify and describe various models of night depositories.
4. Identify and describe service procedure on night depositories.

B. Service Night Depositories ..... 6 Hours

Outcome: ***Demonstrate the ability to service night depositories.***

1. Demonstrate the ability to remove, disassemble, service and reinstall a Chubb T type night deposit head.
2. Demonstrate the ability to remove, disassemble, service and reinstall an Allied Gary night deposit head.
3. Demonstrate the ability to disassemble and service a Diebold Polaris letter deposit.

SECTION SEVEN: ..... CORRECTIONAL INSTITUTION ..... 12 HOURS

A. Correctional Institution ..... 9 Hours

Outcome: ***Identify and describe detention locks.***

1. Overview of detention lock servicing.
2. Identify and describe key lock mechanisms used in detention locks.
3. Identify and describe detention lock manufacturers and products.

B. Service Correctional Institution Locks ..... 3 Hours

Outcome: ***Demonstrate the ability to service detention locks.***

1. Demonstrate the ability to rekey a mogul cylinder.
2. Demonstrate the ability to service a Folger Adam 120D series lock.
3. Demonstrate the ability to service a detention lever lock.

SECTION EIGHT: ..... SECURITY MANAGEMENT ..... 12 HOURS

A. Security Management ..... 10 Hours

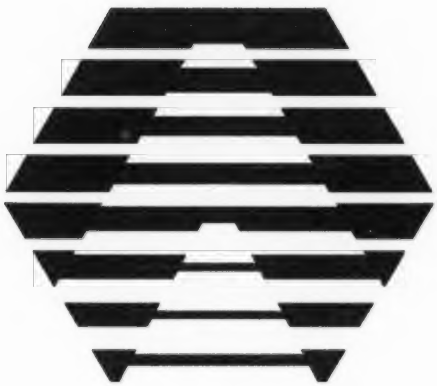
Outcome: ***Identify and describe security management.***

1. Describe an overview of crime prevention.
2. Identify and describe TAP and CPTED.
3. Identify and describe security concerns in relation to the National Building Code of Canada.
4. Describe performing security surveys.

B. Security Requirements ..... 2 Hours

Outcome: ***Demonstrate the ability to identify security requirements.***

1. Demonstrate the ability to identify security requirements.



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